Rec'd PCT/PTO 03 JUN 2002

```
<110> Roitsch, Thomas
<120> promotor system, its production and use
<130> R30024PCT
<140>
<141>
<160> 20
<170> PatentIn Ver. 2.1
<210> 1
<211> 3294
<212> DNA
<213> Nicotiana tabacum
<400> 1
tegagecatt catgttcage ceattetgga aagttgetae aaceatteet tetgataeat 60
teggtaaggt cateettact etgttgaate gagegaggaa gteeetcaat eeeteteega 120
gtgattgttt gatggcaaat atatcgttca ctcttgcctc cgcgttttta gccccaacat 180
gggccattat gaacttgtcg gccatctctt cgaatatttc aatggagcgc gcgggcagct 240
gtgaatacca agtcaatgct cctccggtaa gggtctcgcc gaacattttc aacaagatgg 300
aggagacttg ttctttggag agatcattgc cctttaccgc agtgacataa tgattacatg 360
atcttcgggg tcggtcgtac catcataaat tttcagataa ggtggcatct tgaacgtctt 420
gggtatggca tatggggcgg cttcatcact gtagggttgc tcgactaacc gaccagcgtc 480
tctttttgga aatatttttg gggcacccgg tattttatcg actctttctt ggtgttctct 540
catttgatcc cgaagcattt tattttcgtt ttccatttct tccattttct tcagaatggc 600
cgtgagggtg tcattacctg cattattaat attgtgagtg atacctgtta ctgaaggggg 660
agggtcgtgc tgtttggtca ttgctggtgc aatgcaagtc cttgcatttt ctctaaatac 720
ctcctgagtg ggtttgttga ggatgccggt cagcatattt gtcagccaag cttcgagtag 780
cttcttcacc gctggtggcg cctcttccgt tgtggacgtg gaagctcctt taccgcggga 840
tgttgcgata ctgctgtgag ggaggggtga tccacttcgt cggggagagg tgttaggcgt 900
tatgccttcg ccttctattt cggagacctc attgatggtg tttaagaggt tggtagtgag 960
attggccact gccttcatcc tttcttctcc cttacctgcc atgtcagatc tgggtgtaca 1020
aggaagtagg agcttctctt cttcttttt gtgaattgtg ccagttatag atctaaaaga 1080
aactaaagtt ttaactagac tatcctcaca gacggcgcca aattgtttga ccaaaaaata 1140
tagacttttg attaaattaa ttaatattgt atgacaaagg attaaaccta gttaatgata 1200
ataacttcag atctataatc aattaacagc aatcacggtc atagcagcgt tgagagaaga 1260
ttaaatgtga tgtncattca atatttcaag atcattaatg ataggggaat atcaagcaat 1320
aaataacgat aaatggcatt aaagtaaata aggagaatga ttcacccaat attgaatgag 1380
gtggatgatt cttctttttg acaatgatga atgatggnca aatactagaa tgttgggacc 1440
cttctcggat ctaatgaaaa aagtatggaa tagtagataa tcgaatctct ttagaaaggt 1500
agtgattgtc ttttatctag agagaaagtc tgcttttcaa agaatatttt tatcagagaa 1560
 tattacatcc ccctctctcc ctatntcttt ttctatttat atgggacatt cctcaatcaa 1620
 tcctaaaagt acatacacca agaatattca ataaaatatt tttttgaata ttctattata 1680
 aaaactagct gttagcactc gacctcggtc gntattgact actcggttac gagccctgtc 1740
 atttactaat cgacctcgat tacatcactt tctacgatac tgcttcatgt caaatcttaa 1800
 tgaaagcaga ttttgaccca tacaataata tgacaaaatt gcttccaaag aaaacatggc 1860
 tcttatagtg aaatatcgtt agactgttat agaaagatct gaatttattt ataagaatag 1920
 tgttttttc ttttctttc atatctaagg agtaaagcaa ccatgaatag aaaaggctta 1980
 gtaactatat atcaaaggaa tggtgttttt tctttaaata tggataaaaa tttgtgaata 2040
 tagaagatta gatcaattaa caaaggttat ggtggagtgg taagcagagg cggacctatg 2100
 tgttatagta aggggtcacc cactactaga aatccggtaa agatcgatca aaaaaccgac 2160
```

```
caacattggt cggtaatggc caaaaactga ccaaaacgcg atcatttacg tgtgaacggt 2220
atttttatgg tcggaaagga ataccgacca aagttggtcg gaaattaccg accaactttg 2280
gtcggtcaat taaattcaaa aaaaatattg taaaaaaaaa ccgaccaaag ttgatcggta 2340
ttttaattat gtaataaaaa gattcactat ctgggaatcg aaccggggtc tgtactatgg 2400
caagatacta ttctaccact agaccattgg ttcattttgt tttaagactg tcttttattt 2460
gatttatact ctttaattat atttttgcac gaaaataacc gaccaaagtt ggtcgatttt 2520
attaaaaagt aaaattactt accaaagttg gtcgattttt ttaaatgatc cgccgaatta 2580
accgaccaat tttggtaggt ttttttaata ttaattttta tttattttaa ttgaaaaact 2640
aaccaaagtt agtcggtttc ttgaaacata aatttcgcgg gactcaaaaa tagtttcccg 2700
catttttgcg ccaaagaaaa ccgaccaaag ttggtcggtt tcgtaaaaaa aaaaaaaatt 2760
taaaaaatat attttaaaaa accgaccaac tttagtcggt tttttggtcg attttttgac 2820
cgaccaaagt tggtcggtcg accttggtcg gtttttgccg aatttctagt agtgaccgaa 2880
ccctgtaagc ttcgggagaa attttgtata tgtatatgtg tatatcctta aaatgattaa 2940
tttaaagaac gnngcaccct gaatactaga agcctttagg ggcactagat gagcagaata 3000
acqtqttctc gtcgcgtaaa aatacttgga tccgcctatg atggtaagta cttcttcgtc 3060
cttaatcaga ggtttcgact tcgagctcca gatataaact atagactcgt ctttatagca 3120
ccttttaata agactatgac ttcatctgat ttctctataa atactcctca agctttcggt 3180
tcttctccat tgttcagttt ctttctccac atcacagaag tgaaaacaaa acaagaagaa 3240
gaagaagaag aaaaataaag agtttctgtc aaattaagtc caatagggaa aatg
```

<210> 2 <211> 4312 <212> DNA <213> Nicotiana tabacum

<400> 2

tctagaatga cgccaccggc caggacgggg agtatgattt ccccgaatgt tcgttcaact 60 gcattgttaa aacctgttag cgtgatgcag cccggtacta tcttatcctc gagtttcatt 120 tgtgcaagta ctcgaggatg gacaattcac gggccactcc catcgtccac cataatgcgt 180 cttacatctg tatctaatat tcgtaaagtg ataacgaggg catcatagtg agggaaaacc 240 aaaccgtggt tatctgactt atcgaagatg atactttctt taagtttctc gtaccgttca 300 tgagtgatta actgtttgag cttgtgggtt gtggcgaact ttacgttgtt gatcgaaacg 360 tcgtctccgc ccccgatgat aatgtgaatg gtgcgagtcg gtaagggtgg tttcggcggt 420 ccctggtgtt gttcacgtcc tcgagaaaag ttggtccttc ctcggtcaca caacaatatt 480 ttgaggtgtc cttgatgaag catgtccatg acctcttgtc ttagggcgat acaatcctca 540 gttttgtgac ctcgctcttg gtggaactcg cagagggcat ctgattttct agtgcttgga 600 tctgacctca tcttttgtgg ccactttact tttggtccga gcttcttcaa tgcatagact 660 atttctgagg gtgacacaca aaatttgtga gcggatagta aagagggcat acctctctcg 720 ttccggtgag tccctgtcct tggcctagat gggccctctt cgtagcggga gaggggcatg 780 atggcacttt tgacatatgg ttgatccatt tctcggttag atcatggagc tgcaagatct 840 ctcttggcat cattttgacg atccttcctg gtttcggctt gtaccgaggt caatcgatga 900 gttggcccat tcaggtcgtc ttcgtcggca cgggcctcag cacagtaggc gttgtgtatt 960 tcatcccaag tggttggagg atatttcata agttggttta acagttttct ggtcgccctc 1020 gagccattca tgttcagccc attctggaaa gttgctacaa ccattccttc tgatacattc 1080 ggtaaggtca teettaetet gttgaatega gegaggaagt eeeteaatee eteteegagt 1140 gattgtttga tggcaaatat atcgttcact cttgcctccg cgtttttagc cccaacatgg 1200 gccattatga acttgtcggc catctcttcg aatatttcaa tggagcgcgc gggcagctgt 1260 gaataccaag tcaatgctcc tccggtaagg gtctcgccga acattttcaa caagatggag 1320 gagacttgtt ctttggagag atcattgccc tttaccgcag tgacataatg attacatgat 1380 cttcggggtc ggtcgtacca tcataaattt tcagataagg tggcatcttg aacgtcttgg 1440 gtatggcata tggggcggct tcatcactgt agggttgctc gactaaccga ccagcgtctc 1500 tttttggaaa tattttggg gcacccggta ttttatcgac tctttcttgg tgttctctca 1560 tttgatcccg aagcatttta ttttcgtttt ccatttcttc cattttcttc agaatggccg 1620 tgagggtgtc attacctgca ttattaatat tgtgagtgat acctgttact gaagggggag 1680 ggtcgtgctg tttggtcatt gctggtgcaa tgcaagtcct tgcattttct ctaaatacct 1740 cctgagtggg tttgttgagg atgccggtca gcatatttgt cagccaagct tcgagtagct 1800

```
tetteacege tggtggegee tetteegttg tggacgtgga ageteettta cegegggatg 1860
ttgcgatact gctgtgaggg aggggtgatc cacttcgtcg gggagaggtg ttaggcgtta 1920
tgccttcgcc ttctatttcg gagacctcat tgatggtgtt taagaggttg gtagtgagat 1980
tggccactgc cttcatcctt tcttctcct tacctgccat gtcagatctg ggtgtacaag 2040
gaagtaggag cttctcttct tcttttttgt gaattgtgcc agttatagat ctaaaagaaa 2100
ctaaagtttt aactagacta tootcacaga oggogocaaa ttgtttgaco aaaaaatata 2160
gacttttgat taaattaatt aatattgtat gacaaaggat taaacctagt taatgataat 2220
aacttcagat ctataatcaa ttaacagcaa tcacggtcat agcagcgttg agagaagatt 2280
aaatgtgatg tycattcaat atttcaagat cattaatgat aggggaatat caagcaataa 2340
ataacgataa atggcattaa agtaaataag gagaatgatt cacccaatat tgaatgaggt 2400
ggatgattct tctttttgac aatgatgaat gatgggcaaa tactagaatg ttgggaccct 2460
tctcggatct aatgaaaaa gtatggaata gtagataatc gaatctcttt agaaaggtag 2520
tgattgtctt ttatctagag agaaagtctg cttttcaaag aatattttta tcagagaata 2580
ttacatcccc ctctcccct atctctttt ctatttatat gggacattcc tcaatcaatc 2640
ctaaaagtac atacaccaag aatattcaat aaaatatttt tttgaatatt ctattataaa 2700
aactagctgt tagcactcga cctcggtcgy tattgactac tcggttacga gccctgtcat 2760
ttactaatcg acctcgatta catcactttc tacgatactg cttcatgtca aatcttaatg 2820
aaagcagatt ttgacccata caataatatg acaaaattgc ttccaaagaa aacatggctc 2880
ttatagtgaa atatcgttag actgttatag aaagatctga atttatttat aagaatagtg 2940
tttttttttt ttctttcat atctaaggag taaagcaacc atgaatagaa aaggcttagt 3000
aactatatat caaaggaatg gtgtttttc tttaaatatg gataaaaatt tgtgaatata 3060
gaagattaga tcaattaaca aaggttatgg tggagtggta agcagaggcg gacctatgtg 3120
ttatagtaag gggtcaccca ctactagaaa tccggtaaag atcgatcaaa aaaccgacca 3180
acattggtcg gtaatggcca aaaactgacc aaaacgcgat catttacgtg tgaacggtat 3240
ttttatggtc ggaaaggaat accgaccaaa gttggtcgga aattaccgac caactttggt 3300
cggtcaatta aattcaaaaa aaatattgta aaaaaaaacc gaccaaagtt gatcggtatt 3360
ttaattatgt aataaaaaga ttcactatct gggaatcgaa ccggggtctg tactatggca 3420
agatactatt ctaccactag accattggtt cattttgttt taagactgtc ttttatttga 3480
tttatactct ttaattatat ttttgcacga aaataaccga ccaaagttgg tcgattttat 3540
taaaaagtaa aattacttac caaagttggt cgatttttt aaatgatccg ccgaattaac 3600
cgaccaattt tggtaggttt ttttaatatt aatttttatt tattttaatt gaaaaactaa 3660
ccaaagttag tcggtttctt gaaacataaa tttcgcggga ctcaaaaata gtttcccgca 3720
tttttgcgcc aaagaaaacc gaccaaagtt ggtcggtttc gtaaaaaaaa aaaaaattta 3780
aaaaatatat tttaaaaaac cgaccaactt tagtcggttt tttggtcgat tttttgaccg 3840
accaaagttg gtcggtcgac cttggtcggt ttttgccgaa tttctagtag tgaccgaacc 3900
ctgtaagctt cgggagaaat tttgtatatg tatatgtgta tatccttaaa atgattaatt 3960
taaagaacgt ggcaccctga atactagaag cctttagggg cactagatga gcagaataac 4020
gtgttctcgt cgcgtaaaaa tacttggatc cgcctatgat ggtaagtact tcttcgtcct 4080
taatcagagg tttcgacttc gagctccaga tataaactat agactcgtct ttatagcacc 4140
ttttaataag actatgactt catctgattt ctctataaat actcctcaag ctttcggttc 4200
agaagaagaa aaataaagag tttctgtcaa attaagtcca atagggaaaa tg
```

```
<210> 3
<211> 2019
<212> DNA
<213> Lycopersicon esculentum cv. Moneymaker
```

<400> 3
cataatcaaa tgtgtggtct tatgtagaac taatatttgg taatattagg caagttgtta 60
tgtgacttat tttattcaaa aatataataa gaagttcaaa gagaagagta caagtaagta 120
agtaagcaga gacgaatcct ggatttaaag ggtctggcta tattaatgtt tttttaattt 180
aagcattagc gattcgcctt gcaagtaatc gataggacaa aagttttacc ttactaattc 240
tattgaggca ccaaatccct atgaaaaagc atgtaaaata tgagaagacg aaagaattaa 300
ataggttata attattgtat aatttataac acactttatg ataatattac aaataagaat 360

```
atcgaatatt taattaatga cgaactataa aagcaaagaa ggaaggatga gcttccaaaa 420
acaatcgcaa atgaataaag atgcccaaaa tagagtaacc taacgaagtc gatacttcca 480
ttcataatca aatctgttca aaaacacttg atgggttatt tttaacttta agagatgtat 540
catatogtot ottattatto otttagggot attogoogta ggaataaaat ttatatgato 600
aaatttcacg ttatataaat aatgtgaaga aaaaacttat acttttcaag gtaacaagaa 660
atcatgtttt ttttacgcct tcgtggagac tacttcctcg taacaaaaaa ttaacatttt 720
aagtggcgac tctaaaaact cgtggccagt atattagtcg ccattaaaca ttattttaa 780
tcatgagttc ttttctttt taatctttt ttaaggtcaa atttaccact ttatcttatt 840
tatttaaatt gaaaaatccc aaattttgca ttattttttt gaattccttt ttttttaca 900
cactcaaaaa gtcaaaacat taaaaaaacg aaatagcaaa ttaaatggca aaagacttgt 960
tgtaacaaaa aaaaaatagt aaaacagact cataaaaggt aacaataacc aacaaatcac 1020
acaaaattgt agataaatat tatgcaaaca aataaaaatt aataatccaa tccatttatt 1080
tatttttta aaaaaaacct aaattaactc tccatctttc aatcaaaaac aaactctacc 1140
catttttttc actataaata ctcttcataa ttttcatttg ttcttcattc ccatgtttct 1200
tttctcctta tccaaaaaaa aaaaaattaa aaaaaattat ttagattaaa tatcactatc 1260
tgtcaaagcc caatcattaa aataaaataa aaattatgga ttattcatct aataaaagtt 1320
ctcgttgggc tttgccagtt atcttagttt gcttttttgt aattttatta tccaataatg 1380
ttgtttttgc ttctcataaa gtttttattc acttgcaatc tcaaaatgcc gtaaatgttc 1440
atactgttca tcgaactggt tatcattttc agcccgaaaa acattggatc aatggtatgt 1500
ttattccttt ttttcgtctt ttttttatat atatatata aataaaacga acatgttgtg 1560
tttagtctag atttaatact agtgattttt ttgacgctaa caaataatcg agtactcacc 1620
atttgtcaat agatacattg acatgtatta gtatgatttt cgtctttttt cgttgtttct 1680
aatattattt aatcttcact aattttttta tttttctttg aatgatgtct cttggtcaaa 1740
acatacaata gatcccaatg gtaagttaac tatatttttg tatattttt aaatttattt 1800
tattcttatt atataatata gggaaaaaag gataaatata tccccgaact attataaata 1860
gtatgcacca gtatcctctg ttatacttta gagatatttt tgccgtcaaa aaactagaac 1920
acatatatcc tttatttatc ccgatatcga atcgattgta ccacgagtga agggtatagc 1980
                                                                   2019
tctagttttg gacggtaggg cacctaaagt agacgaaga
<210> 4
<211> 27
<212> DNA
<213> artificial sequence
<220>
<223> description of artificial sequence: primer
<220>
<221> misc feature
 <222> 10
 <223> n is any nucleotide
 <400> 4
                                                                   27
 ccttcacytn ttytaycart ayaaycc
 <210> 5
 <211> 27
 <212> DNA
 <213> artificial sequence
 <220>
 <223> description of artificial sequence: primer
 <400> 5
                                                                   27
 cctttcrwar aargtyttdg wwgcgta
```

```
<210> 6
<211> 760
<212> DNA
<213> Nicotiana tabacum
<400> 6
ggtaccccct ttcgtagaag gttttggaag cgtagaaatt tccatagtca agtctcaatc 60
ccttccaact atcaaccgaa gtgttatctg gaatatacct gtctttttta atatcgtacg 120
taccaacagt atagtactca aacctagtaa gatccatact atttttaagt acgtacttag 180
aatcttcacc atatttatct aaaccatttg taccttgtaa tgatacaggg aaaaaatcag 240
gacattecea attteetgta ttageagttg aatgaagtgg atgtttagee ttaateeate 300
tcataaaatc cttacttcta tacattattg ccaatcccct cttttttctc aaacttccca 360
ttataattct ccaatgacca tctttgccca tccaagctgt tgtcgggtca cgaaattggg 420
tcttgttaat gctaatatcc gggacgatta acgggttgtt atcgggcttg atccattcgc 480
gaagatatgg atcggataag ttggccggga cggcgtaatt ttggacttgg gttttattgg 540
catcaactat tocagtgtac aaaataatgg gcttgttacc aggaagaact gttgctgaac 600
cagaccaagt tocatatttg tcaaattgtt tggatggata aattgcaggc tctaaattaa 660
tccaattgat taaatctttt gagactgaat gagcccaaac aatgttgccc catactgatc 720
cttttggatt gtattgataa aacaagtgaa ggggggatcc
<210> 7
<211> 29
<212> DNA
<213> artificial sequence
<220>
<223> description of artificial sequence: primer
<400> 7
                                                                   29
atccartttt kdbkwggttg aaartggwa
<210> 8
<211> 4135
<212> DNA
<213> artificial sequence
<220>
<223> description of artificial sequence: fusion of promotor and coding sequence
in antisense-orientation
<400> 8
tcgagccatt catgttcagc ccattctgga aagttgctac aaccattcct
                                                         100
tctgatacat tcggtaaggt catccttact ctgttgaatc gagcgaggaa
gtccctcaat ccctctccga gtgattgttt gatggcaaat atatcgttca
                                                         150
ctcttgcctc cgcgttttta gccccaacat gggccattat gaacttgtcg
                                                         200
gccatctctt cgaatatttc aatggagcgc gcgggcagct gtgaatacca
                                                         250
 agtcaatgct cctccggtaa gggtctcgcc gaacattttc aacaagatgg
                                                         300
 aggagacttg ttctttggag agatcattgc cctttaccgc agtgacataa
                                                         350
 tgattacatg atcttcgggg tcggtcgtac catcataaat tttcagataa
                                                         400
```

```
450
ggtggcatct tgaacgtctt gggtatggca tatggggcgg cttcatcact
gtagggttgc tcgactaacc gaccagcgtc tctttttgga aatatttttg
                                                       500
                                                       550
gggcacccgg tattttatcg actetttett ggtgttetet catttgatee
cgaagcattt tattttcgtt ttccatttct tccattttct tcagaatggc
                                                       600
cgtgagggtg tcattacctg cattattaat attgtgagtg atacctgtta
                                                       650
                                                       700
ctgaaggggg agggtcgtgc tgtttggtca ttgctggtgc aatgcaagtc
cttgcatttt ctctaaatac ctcctgagtg ggtttgttga ggatgccggt
                                                       750
cagcatattt gtcagccaag cttcgagtag cttcttcacc gctggtggcg
                                                       800
cctcttccgt tgtggacgtg gaagctcctt taccgcggga tgttgcgata
                                                       850
                                                       900
ctgctgtgag ggaggggtga tccacttcgt cggggagagg tgttaggcgt
tatgccttcg ccttctattt cggagacctc attgatggtg tttaagaggt
                                                       950
tggtagtgag attggccact gccttcatcc tttcttctcc cttacctgcc 1000
atgtcagatc tgggtgtaca aggaagtagg agcttctctt cttcttttt 1050
gtgaattgtg ccagttatag atctaaaaga aactaaagtt ttaactagac 1100
tatcctcaca gacggcgcca aattgtttga ccaaaaaata tagacttttg 1150
attaaattaa ttaatattgt atgacaaagg attaaaccta gttaatgata 1200
ataacttcag atctataatc aattaacagc aatcacggtc atagcagcgt 1250
tgagagaaga ttaaatgtga tgtncattca atatttcaag atcattaatg 1300
ataggggaat atcaagcaat aaataacgat aaatggcatt aaagtaaata 1350
aggagaatga ttcacccaat attgaatgag gtggatgatt cttctttttg 1400
acaatgatga atgatggnca aatactagaa tgttgggacc cttctcggat 1450
ctaatgaaaa aagtatggaa tagtagataa tcgaatctct ttagaaaggt 1500
agtgattgtc ttttatctag agagaaagtc tgcttttcaa agaatatttt 1550
tatcagagaa tattacatcc ccctctctcc ctatntcttt ttctatttat 1600
atgggacatt cctcaatcaa tcctaaaagt acatacacca agaatattca 1650
ataaaatatt tttttgaata ttctattata aaaactagct gttagcactc 1700
gacctcggtc gntattgact actcggttac gagccctgtc atttactaat 1750
cgacctcgat tacatcactt tctacgatac tgcttcatgt caaatcttaa 1800
tgaaagcaga ttttgaccca tacaataata tgacaaaatt gcttccaaag 1850
aaaacatggc tcttatagtg aaatatcgtt agactgttat agaaagatct 1900
agtaaagcaa ccatgaatag aaaaggctta gtaactatat atcaaaggaa 2000
tggtgttttt tctttaaata tggataaaaa tttgtgaata tagaagatta 2050
gatcaattaa caaaggttat ggtggagtgg taagcagagg cggacctatg 2100
tgttatagta aggggtcacc cactactaga aatccggtaa agatcgatca 2150
aaaaaccgac caacattggt cggtaatggc caaaaactga ccaaaacgcg 2200
atcatttacg tgtgaacggt atttttatgg tcggaaagga ataccgacca 2250
aagttggtcg gaaattaccg accaactttg gtcggtcaat taaattcaaa 2300
aaaaatattg taaaaaaaaa ccgaccaaag ttgatcggta ttttaattat 2350
gtaataaaaa gattcactat ctgggaatcg aaccggggtc tgtactatgg 2400
caagatacta ttctaccact agaccattgg ttcattttgt tttaagactg 2450
tottttattt gatttatact otttaattat atttttgcac gaaaataacc 2500
gaccaaagtt ggtcgatttt attaaaaagt aaaattactt accaaagttg 2550
gtcgattttt ttaaatgatc cgccgaatta accgaccaat tttggtaggt 2600
ttttttaata ttaatttta tttattttaa ttgaaaaact aaccaaagtt 2650
agtcggtttc ttgaaacata aatttcgcgg gactcaaaaa tagtttcccg 2700
catttttgcg ccaaagaaaa ccgaccaaag ttggtcggtt tcgtaaaaaa 2750
aaaaaaaatt taaaaaatat attttaaaaa accgaccaac tttagtcggt 2800
tttttggtcg attttttgac cgaccaaagt tggtcggtcg accttggtcg 2850
gtttttgccg aatttctagt agtgaccgaa ccctgtaagc ttcgggagaa 2900
attttgtata tgtatatgtg tatatcctta aaatgattaa tttaaagaac 2950
gnngcaccct gaatactaga agcctttagg ggcactagat gagcagaata 3000
acgtgttctc gtcgcgtaaa aatacttgga tccgcctatg atggtaagta 3050
cttcttcgtc cttaatcaga ggtttcgact tcgagctcca gatataaact 3100
atagactcgt ctttatagca ccttttaata agactatgac ttcatctgat 3150
ttctctataa atactcctca agctttcggt tcttctccat tgttcagttt 3200
ctttctccac atcacagaag tgaaaacaaa acaagaagaa gaagaagaag 3250
```

```
aaaaataaag agtttctgtc aaattaagtc caatagggaa aatggagctg 3300
tttggatccc cgttttcatt attggggaga ccatctaatt cataagacca 3350
accccacacg attcttcggt ccttactagg gtcgtagaac gacttagacg 3400
cgtagaaaat gccatagtca agtctcaatc ctttccaacc atcgactgaa 3450
gtgttatctg gaatatacct atcttgtttg gcatcatatg taccaattgt 3500
gtagtactca aacgcggcaa caggaaggct attcttgaga acgtacttaa 3550
catattttcc gttgtacgat gcatctaaac cattagaacc ttgcaaggaa 3600
acaggaaaaa aatctgggca ttcccaattt cctgttttgg cagatgaatg 3650
aagtggatgc tcagccttga tccatttcat gaaattccta cttctataca 3700
atattgccaa cccaccacgg tttcttgaac ttcctaccac aattctccaa 3750
tgaccatctt tgcccatcca agctgttgtc gggtcacgaa attgggtctt 3800
ggtgatgctg atatccggga cgatcaacgg gttgttatcg ggcttgttcc 3850
attcacggag atatggatcg gataagttgg ccgggacggc gtaattttgg 3900
acttgggtca tgttggcatc taccactcca gtgtacaaaa taatgggctt 3950
gttaccaggg agaatagttg ctgaaccaga ccatgttcca tatttgtcaa 4000
atggtttgga tggataaatt gcaggctcta aattaatcca attgattaag 4050
tcttttgaga ctgaatgagc ccaaacaatg ttgttcattg ttgatccttt 4100
tggattgtac tggtagaata gatgatagac tcgag
<210> 9
<211> 19
<212> DNA
<213> artificial sequence
<220>
<223> description of artificial sequence: primer
<400> 9
                                                                   19
cqaqttaaca tatgcagct
<210> 10
<211> 19
<212> DNA
<213> artificial sequence
<220>
<223> description of artificial sequence: primer
<400> 10
                                                                   19
gcatatgtta actcgagct
<210> 11
<211> 24
<212> DNA
<213> artificial sequence
<220>
<223> description of artificial sequence: primer
 <400> 11
```

cttggatccg cctatgatgg taag

24

```
<210> 12
<211> 30
<212> DNA
<213> artificial sequence
<220>
<223> description of artificial sequence: primer
<400> 12
                                                                   30
gcgcggatcc tctaaacagc tccattttcc
<210> 13
<211> 30
<212> DNA
<213> artificial sequence
<220>
<223> description of artificial sequence: primer
<400> 13
                                                                   30
ccgtctcgag tctatcatct attctaccag
<210> 14
<211> 24
<212> DNA
<213> artificial sequence
<220>
<223> description of artificial sequence: primer
<400> 14
                                                                    24
gttttcatta ttggggagac catc
<210> 15
<211> 3908
<212> DNA
<213> Nicotiana tabacum
<220>
<223> genomic sequence of extracellular invertase NIN 88
 <400> 15
 atggagctgt ttagaaaaag ctcttttcat tgtgctttgc cagttttcat
                                                          50
 attattggtt tgcttgttta taattttatc taactatgtt gtgtttgctt
                                                         100
 tcaattatga cgtttttacg tgcttccaat cctcaaaaga tgctaatatc 150
acttctaact acagaactgg ttaccatttt caacccccca agaactgtat 200
 gaatggtacg tttctctccc cttccaccca ccccaccccc tcttctgttg 250
 ttgcttttga tatgtgtata tatatatata tatccatttt ttgctcggta
                                                         300
 tcggcattag gatccactaa attcggcatt gaggggtaat taggcgtcta
                                                         350
 acaaagtcaa ttccataact agggctcgaa cccgagactt ccgattaaaa
                                                         400
                                                         450
 atgaaggagt acttaacact tattctgtaa cattaaacaa tagacatcct
 actcctctaa actcatttgt atttttaaaa tatctatttt accctcgatc
                                                         500
 ttattagcct tcatctactt ttttttttt tacttttta atatcacaat 550
```

```
attttcttat tctatgttat gaatttacct atagtgaaca taaaatttaa
aaaaggtgaa aaacaataat caatcatata cttattgaag ttagaataat
                                                        650
gaaacaaatg ggcgcaatta aaatattaga ataacagatc ttattaatat
                                                        700
                                                        750
caatcaaata aaatttagtt cagtaatata aaaaaataat taaacataga
                                                        800
ggtagatttt ctaagaaatt cctaaaagat tatatattta taacttagaa
aatattttgt taatgaaaat aaatattcaa agatatatac agaacaacaa
                                                        850
caacaacccg accttacccc taccctgggg tagagagact gtttccgata
gaccetegge tecetecete caagaactee ceacettgee ettgggatga
                                                        950
ctcgaactca caacctctta gttggaagtg gatggtgctt accactagag 1000
caacccgctc ttgtccgaag atatatacag aaacatgtaa taaagaataa 1050
aagagaaagt aaaacttaaa tatatagata atattaatgt aacgataaaa 1100
aagagtaacg ataattgttt ttgcaaattc ataaaggtat tattctagtt 1150
aaattttatt gagttttaat tatataattt atcataagat attaaaattg 1200
gtaaaatact taggctaatg ataaaataca tcttatataa tattaaaaaa 1250
aatagaggag aaattgaaaa tgtcaagggt aaaatagaaa atgcatatga 1300
taggaggagc gaaatatata ttatttagtg ttggaagagt gatttgattt 1350
ttaagataaa attaggggat gaaaatgatt tttacacttt aatagataga 1400
tcctactgaa acacgtgtga gttccaaaag caaaaaacga aaaaggaacc 1450
agctccctaa taatgagtac ttattataca agtaaataca attagaggac 1500
actaattgca accccctact tgggaactgt cggcctattg ctttaattac 1550
ttatactctc actccgttca cttttactta tccaatattc taagtgacat 1600
ttggacataa gaattgtaaa attccaaaat aggaaaaaaa aatacaagtg 1650
aaaatgttat ttgaaattta gagttacgtt tggacatgaa tataattttg 1700
ggttgttttt aaagttttgt gagtgatttg agtgaaaatt ttgaaaaaca 1750
gttttttgaa gtttttcaaa ttttcgaaaa ttttcaaaat gcatcttcaa 1800
atgaaaattg aaaattttat gaacaaacgc tgatttcgaa aaaaaagtga 1850
tttttttgtg gaaaaaagaa aaaaatttct tatgtccaaa cgggctctaa 1900
aaatagattt tcacttttac ttgtcacttt tcgcatatca agagaagaca 1950
atttcttttt ttctgttata ctcatagtat taattactca tttcaaatca 2000
ttttttcaaa tccactaaaa atatgtatca attaatatgg gtattatggt 2050
aaattatgca cttcatttat tatttcttaa ggagtgttca aagtccgtag 2100
tagacaagta aaagtgaatg gagagagtaa taaattacac ctactttctt 2150
ggaaatacca gttgagacat acgtagaact tttgctaatt ttttcttatt 2200
ttttcttaat tatattatat ttgtgtgtga tatgggcaga aggggttggt 2250
aagaaggatc ttgtccccat cagcaactta caatatttta gggaagacaa 2300
ataataattt totgoattto otaaattttt gtaatttoac ttttcatttg 2350
tttattattt gattattcat caatattaaa ttatgcagat ttagtactca 2400
cattcaattg tttatttaca attttttta attttttct ttatggtctt 2450
tctcgatgcc ttcaaacata caaatagacc ccaatggtga gtcagaaatt 2500
ttatcttctt tttatatata taatttaatc accaattatt catttatgat 2550
actgattttt catgtaatta ccaacagcac caatgtatta caatggagtc 2600
tatcatctat tctaccagta caatccaaaa ggatcaacaa tgaacaacat 2650
tgtttgggct cattcagtct caaaagactt aatcaattgg attaatttag 2700
agcctgcaat ttatccatcc aaaccatttg acaaatatgg aacatggtct 2750
ggttcagcaa ctattctccc tggtaacaag cccattattt tgtacactgg 2800
agtggtagat gccaacatga cccaagtcca aaattacgcc gtcccggcca 2850
acttatccga tccatatctc cgtgaatgga acaagcccga taacaacccg 2900
ttgatcgtcc cggatatcag catcaccaag acccaatttc gtgacccgac 2950
aacagcttgg atgggcaaag atggtcattg gagaattgtg gtaggaagtt 3000
caagaaaccg tggtgggttg gcaatattgt atagaagtag gaatttcatg 3050
aaatggatca aggctgagca tccacttcat tcatctgcca aaacaggaaa 3100
ttgggaatgc ccagattttt ttcctgtttc cttgcaaggt tctaatggtt 3150
tagatgcatc gtacaacgga aaatatgtta agtacgttct caagaatagc 3200
cttcctgttg ccgcgtttga gtactacaca attggtacat atgatgccaa 3250
acaagatagg tatattccag ataacacttc agtcgatggt tggaaaggat 3300
tgagacttga ctatggcatt ttctacgcgt ctaagtcgtt ctacgaccct 3350
agtaaggacc gaagaatcgt gtggggttgg tcttatgaat tagatggtct 3400
```

```
ccccaataat gaaaacaaca aaggatgggc ctggaattca ggctatcccg 3450
cgtaaagtat ggcttgattt cagtggtaaa caattagttc aatggcctat 3500
tgaagaatta aaaactctaa gaaagcaaaa tgtccgattg agcaacaaaa 3550
ggctggataa tggagaaaag attgaagtta aaggaatcac agcgtcgcag 3600
gtttagactt ttttctagtt tttaatttgc aagcatttta aataaaattt 3650
tcttcacaag ttaaggctaa gttgggacat ctattgaaat tgccaggctg 3700
atgttgaagt gacattctcc ttctctagct tagacaaggc agagccattt 3750
gatcctagtt gggctgatct ttatgcacaa gatgtttgtg caattaaggg 3800
ttcaactgtt ccaggtgggc ttgggccatt tggccttgca acattggctt 3850
ctcaaaactt agaagaatac acacctgttt ttttcagagt gttcaaagct 3900
                                                        3908
cagaattt
<210> 16
<211> 24
<212> DNA
<213> artificial sequence
<223> description of artificial sequence: primer
<400> 16
                                                                      24
ctc cat tgt tca gtt tct ttc tcc
<210> 17
<211> 27
<212> DNA
<213> artificial sequence
<220>
<223> description of artificial sequence: primer
<400> 17
                                                                      27
ggt aca tat gat gcc aaa caa gat agg
<210> 18
<211> 27
<212> DNA
<213> artificial sequence
<223> description of artificial sequence: primer
 <400> 18
                                                                       27
 gtg gtg gag agc ttt gga gca aaa agg
 <210> 19
 <211> 24
 <212> DNA
 <213> artificial sequence
```

<223> description of artificial sequence: primer

<400> 19	2.4
gtt gca ctt cgt ttg tcc gaa agc	24
<210> 20	
<211> 24	
<212> DNA	
<213> artificial sequence	
<220>	
<223> description of artificial sequence: primer	
<400> 20	0.4
gga gtt tga ttg ata act cag tag	24